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Attorney Docket No.: **Google-44 (GP-096-00-US)**

Appl. No.: **10/750,363**

Confirmation No.: **4908**

Appellant/Applicants: **Krishna BHARAT, et al.**

Filed: **December 31, 2003**

Title: **GENERATING USER INFORMATION FOR USE IN TARGETED ADVERTISING**

TC/A.U.: **3621**

Examiner: **Evens J. Augustin**

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S I R:

APPEAL BRIEF

Further to the Notice of Appeal filed on February 12, 2010, which set a period for response to expire on April 12, 2010, that period being extended four (4) months to expire on August 12, 2010, the appellant requests that the Board reverse all outstanding grounds of rejection in view of the following.

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I. Real Party In Interest

The real party in interest is Google, Inc. An assignment of the above-referenced patent application from the inventors to Google, Inc. was recorded in the Patent Office starting at Frame 0289 of Reel 015479.

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II. Related Appeals and Interference

There are no related appeals or interferences.

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III. **Status of Claims**

Claims 1, 3, 5-26, 33, 35, 37-58, 65 and 66 are pending.

Claims 2, 4, 27-32, 34, 36, 59-64 and 67-76 are canceled.

Claims 1, 3, 5-33 (the appellant believes this should be 5-26 and 33), 35 and 37-66 (the appellant believes this should be 37-58, 65 and 66) are rejected. More specifically, claims 1, 3, 5-33, 35 and 37-66 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,754,939 ("the Herz patent") in view of U.S. Patent No. 5,724,567 ("the Rose patent").

The foregoing rejection of claims 1, 3, 5-26, 33, 35, 37-58, 65 and 66 is appealed.

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IV. Status of Amendments

There have been no amendments subsequent to the final Office Action (Paper No. 20091108).

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V. Summary of the Claimed Subject Matter

Generally, embodiments consistent with the claimed invention "increase the relevancy of ads served for some user request, such as a search query or a document request for example, to the user that submitted the request." (Page 4, lines 16-18 of the present application) To this end, embodiments consistent with the claimed invention may be used (1) to ***determine user profile information ("UPI") for users*** to which the ads are served (See, for example, independent claims 1, 7, 33 and 39, addressed below.), and/or (2) to ***generate user profile information for documents*** with which the ads are served (See, for example, independent claims 14 and 46, addressed below.). Such user profile information may then be used to control the serving of the ads.

Independent 1 recites a computer-implemented method for ***determining user profile information for a user***, the computer-implemented method comprising:

a) determining, with a computer system including at least one computer (This is supported, for example, by Figures 3 and 12, page 12, line 23 through page 13, line 17, and page 26, line 20 through page 27, line 28.), initial user profile information for the user using information included in past search queries submitted to a search engine by the user, wherein such information is independent of documents returned as search results to the past search queries (This is supported, for example, by 710 of Figure 7, page 5, lines 11-13, page 23, lines 9-14,

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Figure 9, page 23, line 28 through page 24, line 2 and page 24, lines 7-20.);

b) inferring, with the computer system, user profile information for the user (This is supported, for example, by 720 of Figure 7, page 23, lines 14-16 and page 24, line 21 through page 25, line 18.);

c) determining, with the computer system, the user profile information for the user using both the initial user profile information and the inferred user profile information (This is supported, for example, by 730 of Figure 7, page 23, lines 16 and 17, Figures 10 and 11 and page 25, line 26 through page 26, line 18.); and

d) controlling, with the computer system, the serving of an advertisement to the user using the determined user profile information (This is supported, for example, by 230, 235 and 250 of Figure 2, page 1, lines 6-10, page 5, lines 1-16, page 7, lines 8-10, page 12, lines 1-7 and 19-21, page 17, lines 8-10 and page 19, line 1 through page 20, line 30.).

Corresponding independent claim 33 recites apparatus for ***determining user profile information for a user***, the apparatus comprising:

a) at least one processor (This is supported, for example, by 1210 of Figure 12, and page 26, line 20 through page 27, line 28.);

b) an input device (This is supported, for example, by 1232 of Figure 12 and page 26, line 20 through page 27, line 28.); and

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c) at least one storage device storing a computer executable code which (This is supported, for example, by 1220 of Figure 12 and page 26, line 20 through page 27, line 28.), when executed by the at least one processor, performs the method of independent claim 1, the acts of which are summarized above.

Independent claim 7 recites a computer-implemented method for ***determining user profile information for a user***, the computer-implemented method comprising:

a) determining, with a computer system including at least one computer (This is supported, for example, by Figures 3 and 12, page 12, line 23 through page 13, line 17, and page 26, line 20 through page 27, line 28.), initial user profile information for the user (This is supported, for example, by 710 of Figure 7, page 5, lines 11-13, page 23, lines 9-14, Figure 9, page 23, line 28 through page 24, line 2 and page 24, lines 7-20.);

b) inferring, with the computer system, user profile information for the user (This is supported, for example, by 720 of Figure 7, page 23, lines 14-16 and page 24, line 21 through page 25, line 18.);

c) determining, with the computer system, the user profile information for the user using both the initial user profile information and the inferred user profile information (This is supported, for example, by 730 of Figure 7, page 23, lines 16 and 17, Figures 10 and 11 and page 25, line 26 through page 26, line 18.); and

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d) controlling, with the computer system, the serving of an advertisement to the user using the determined user profile information (This is supported, for example, by 230, 235 and 250 of Figure 2, page 1, lines 6-10, page 5, lines 1-16, page 7, lines 8-10, page 12, lines 1-7 and 19-21, page 17, lines 8-10 and page 19, line 1 through page 20, line 30.),

wherein the act of inferring user profile information for the user includes

i) defining a node for each of a number of documents and the user, wherein each node represents a particular one of the number of documents or the user (This is supported, for example, by Figure 10, 1110 of Figure 11 and page 24, line 27 through page 25, line 25.),

ii) adding edges between nodes if there is an association between the nodes to define a graph, wherein there is an association between at least two of the nodes (This is supported, for example, by Figure 10, 1120 of Figure 11 and page 23, line 27 through page 25, line 25.) and

iii) inferring user profile information for the user using a topology of the graph and user profile information of other documents (This is supported, for example, by page 25, line 26 through page 26, line 18.)

Corresponding independent claim 39 recites apparatus for ***determining user profile information for a user***, the apparatus comprising:

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a) at least one processor (This is supported, for example, by 1210 of Figure 12, and page 26, line 20 through page 27, line 28.);

b) an input device (This is supported, for example, by 1232 of Figure 12 and page 26, line 20 through page 27, line 28.); and

c) at least one storage device storing a computer executable code which (This is supported, for example, by 1220 of Figure 12 and page 26, line 20 through page 27, line 28.), when executed by the at least one processor, performs the method of independent claim 7, the acts of which are summarized above.

Independent claim 14 recites a computer-implemented method for ***determining user profile information for a document***, the computer-implemented method comprising:

a) determining, with a computer system including at least one computer (This is supported, for example, by Figures 3 and 12, page 12, line 23 through page 13, line 17, and page 26, line 20 through page 27, line 28.), initial user profile information for the document (This is supported, for example, by 610 of Figure 6, page 22, line 29 through page 23, line 1, Figure 8 and page 23, lines 22-27.);

b) inferring, with the computer system, user profile information for the document (This is supported, for example, by 620 of Figure 6, page 23, lines 1-3 and page 24, line 21 through page 25, line 25.);

c) determining, with the computer system, the user profile information for the document using both the

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initial user profile information and the inferred user profile information (This is supported, for example, by 630 of Figure 6 and page 23, lines 3 and 4.);

d) associating, with the computer system, with the document, the determined user profile information for the document (This is supported, for example by page 17, lines 2-4.);

e) storing, with the computer system, the association of the document with the determined user profile information for the document (This is supported, for example, by Figure 4, page 17, line 17 through page 18, line 23, 1220 of Figure 12, page 7, lines 1-4 and page 26, line 22 through page 27, line 28.); and

f) controlling, with the computer system, the serving of an advertisement with the document using the determined user profile information for the document stored in association with the document (This is supported, for example, by 230, 235 and 250 of Figure 2, page 1, lines 6-10, page 5, lines 1-16, page 7, lines 8-10, page 12, lines 1-7 and 19-21, page 17, lines 8-10 and page 19, line 1 through page 20, line 30.).

Corresponding independent claim 46 recites apparatus for ***determining user profile information for a document***, the apparatus comprising:

a) at least one processor (This is supported, for example, by 1210 of Figure 12, and page 26, line 20 through page 27, line 28.);

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b) an input device (This is supported, for example, by 1232 of Figure 12 and page 26, line 20 through page 27, line 28.); and

c) at least one storage device storing a computer executable code which (This is supported, for example, by 1220 of Figure 12 and page 26, line 20 through page 27, line 28.), when executed by the at least one processor, performs the method of independent claim 14, the acts of which are summarized above.

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VI. Grounds of Rejection to be Reviewed on Appeal

The issues presented for review are whether (separately patentable and argued groups of) claims 1, 3, 5-26, 33, 35 and 37-58, 65 and 66 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over the Herz patent in view of the Rose patent.

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VII. Argument

The appellant respectfully requests that the Board reverse the final rejection of claims 1, 3, 5-26, 33, 35, 37-58, 65 and 66 in view of the following.

Rejections under 35 U.S.C. § 103

Claims 1, 3, 5-26, 33, 35, 37-58, 65 and 66 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Herz patent in view of the Rose patent. The appellant respectfully requests that the Board reverse this ground of rejection in view of the following.

Group I. Claims 1, 3, 5, 6, 33, 35, 37 and 38

Independent claims 1 and 33 are not rendered obvious by the Herz and Rose patents because the cited patents do not teach or make obvious determining ... initial user profile information for the user ***using information included in past search queries submitted to a search engine by the user, wherein such information is independent of documents returned as search results to the past search queries***.

The Examiner contends that the "query profile" discussed on column 66, lines 57-67 of the Herz patent teaches this feature. (See Paper No. 20091108, page 8.) The appellant respectfully disagrees. More specifically, the "query profile" discussed on column 66, lines 57-67 of the Herz patent includes information from a single

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search query (as opposed to plural search queries as claimed), and can be updated using document cluster information (as opposed to being independent of the documents returned as search results as claimed). (See column 69, lines 1-42 of the Herz patent.) Further, column 20, lines 24-26 of the Herz patent, cited by the Examiner (See Paper No. 20091108, page 8.), concerns retrieved documents, ***not*** queries.

The Examiner apparently does not rely on the Rose patent to compensate for this deficiency of the Herz patent. Thus, independent claims 1 and 33 are not rendered obvious by the Herz and Rose patents for at least the foregoing reason. Since claims 3, 5 and 6 directly or indirectly depend from claim 1 and since claims 35, 37 and 38 directly or indirectly depend from claim 33, these claims are similarly not rendered obvious by the Herz and Rose patents.

Group II. Claims 7, 13, 39 and 45

Independent claims 7 and 39 are not rendered obvious by the Herz and Rose patents because these patents, either taken alone or in combination, neither teach, nor suggest, acts of inferring user profile information for the user by (i) defining a node for each of a number of documents and the user, (ii) adding edges between nodes if there is an association between the nodes to define a graph, and (iii) ***inferring user profile information for the user using a topology of the graph and user profile information of other documents***.

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The Examiner refers to Figures 1 and 2 of the Herz patent, and contends that the nodes (computers) and links (communications links) teach these features. (See Paper No. 20091108, page 4.) The Examiner further argues that in the Herz patent, the information servers contain the target documents, citing column 26, line 37, and column 29, lines 1-5. (See Paper No. 20091108, pages 4 and 5.) However, Figures 1 and 2 of the Herz patent show nodes and links in the context of computers that can communicate with one another over a communications network. These nodes and links are in no way related to nodes and edges of a ***graph, the topology of which is used to infer user profile information.***

The Examiner then argues that the system can link users to documents based on the users' interests in the documents or other documents associated with each link, citing column 60, lines 62-64. (See Paper No. 20091108, page 5.) The cited section of the Herz patent merely concerns ranking links in a hypertext document. This neither teaches, nor makes obvious, nodes and edges of a ***graph, the topology of which can be used to infer user profile information.***

The Examiner further argues that since the system can determine relationships between users and documents, "one skilled in the art ***could*** easily infer from these relationships to ***create graphs,*** [Emphasis added.]" citing column 10, lines 46-53. (Paper No. 20091108, pages 5 and 6) The appellant respectfully disagrees. First, the cited portion of the Herz patent merely discusses that a user might like movies similar to those the user has

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liked in the past, or might like movies liked by similar users. The fact that a system "***could be***" modified is not the proper standard for showing obviousness under 35 U S.C. § 103. The fact that graph theory defines objects with "nodes" and connections with "edges" neither teaches, nor makes obvious, (i) defining a node for each of a number of documents and the user, wherein each node represents a particular one of the number of documents or the user, (ii) adding edges between nodes if there is an association between the nodes to define a graph, and (iii) ***inferring user profile information for the user using a topology of the graph and user profile information of other documents***.

The nodes and links in the Herz patent are described in a totally different context than recited in independent claims 7 and 39. When interpreting the terms "nodes" and "edges", the Examiner improperly ignores the specification as it would be interpreted by one of ordinary skill in the art. The appellant respectfully notes that the MPEP provides that the scope of claims in patent applications is determined not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art." (MPEP 2111) In the instant application, the specification discusses "nodes" in terms of representing users and documents on a graph and "edges" between the user node and document nodes for the top Web pages that were returned by a search engine in response to search queries that the user submitted, and perhaps between pairs of documents that have links (e.g.,

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hyperlinks) between them. Specifically, with reference to Figures 10 and 11, the specification states:

> In one exemplary embodiment of the present invention, the association information 1070 may be ***a graph in which users and documents are represented as nodes*** 1072 and 1076, respectively. Figure 11 is a flow diagram of an exemplary method 1100 that may be used to associate users and/or documents in a manner consistent with the present invention. As shown, ***nodes may be defined for each user and document.*** (Block 1110) For each of the user nodes 1072, ***edges*** 1074 (which indicate an association) ***may be drawn between the user node and document nodes for the top Web pages that were returned by a search engine in response to search queries that the user submitted.*** (In a variant, ***the edges*** 1074 ***could be drawn only to Web pages that the user selected*** (e.g., clicked on)). Additionally, ***edges*** 1078 ***may be drawn between pairs of documents that have links (e.g., hyperlinks) between them.*** (Block 1120) Although not shown, user-to-user associations may also be generated. For example, edges may be added between users that have visited one or more of the same documents. [Emphasis added.]

(Page 25, lines 4-18 of the Specification) Thus, using the specification, one of ordinary skill in the art at the time of the invention would interpret "nodes" and "edges" as representations of users and documents, and relationships between users and documents, on a graph.

In the Response to Arguments section, the Examiner states:

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> Regarding the aspect of nodes and graphs, par. 111 of applicant's published specification teaches "In one exemplary embodiment of the present invention, the association information 1070 may be a graph in which users and documents are represented as nodes 1072 and 1076, respectively". Therefore, a node appears to be an association of user and document. As such, Fig. 5A of Rose teaches "each user profile also comprises a vector, based upon the user's indications as to his relative interest in previously retrieved documents. Each time a user provides a new response to a retrieved message, the profile vector is modified in accordance with the results of the indication". Another representation of a user-document node can be found in Fig. 6 of Rose. "Referring to FIG. 6, each time a user retrieves a document and subsequently provides an indication of interest, the result can be stored in a table 42. Using the information in this table, a correlation matrix R can be generated; whose entries indicate the degree of correlation between the various users' interests in commonly retrieved messages" (Rose, C7, L6-10). Both of these representations are topologies or configuration (Per Merriam Webster's dictionary) of user-document of interest or inferred interests by user.

(Paper No. 20091108, pages 8 and 9) However, independent claim 7 recites, in pertinent part:

> i) ***defining a node for each of a number of documents and the user,***

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> ***wherein each node represents a particular one of the number of documents or the user,***
> ii) ***adding edges between nodes*** if there is an association between the nodes to define a graph, and
> iii) ***inferring user profile information*** for the user using a topology of the graph ***and user profile information of other documents*** [Emphasis added.]

Neither cited patent discloses such features of independent claim 7. Furthermore, the Examiner argues that acts that are conditionally performed are not given weight since they need not be performed if the condition is not met. (See, e.g., Paper No. 20091108, page 6.) As the appellant previously noted to the Examiner, claims 7-12 and 39-44 (claims 8-12 and 40-44 are separately argued later) had been amended to recite that the condition is met (in which case the conditional act is performed). Therefore, the Examiner should have given such elements of these claims patentable weight.

Moreover, although the Examiner apparently argues, on the one hand, that the information servers of the Herz patent contain documents to which the user can be linked, and that one could infer a graph from purported relationships between users and other users or users and documents, the Examiner later concedes that the Herz patent does not describe a node that represents a document or users. (See Paper No. 20091108, page 6.) In an attempt to compensate for this admitted deficiency of the Herz patent, the Examiner relies on the Rose patent. In particular, the Examiner contends that the Rose patent

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teaches various concepts concerning users and documents. (See Paper No. 20091108, pages 6 and 7.) However, the appellant respectfully notes that the cited portions of the Rose patent concern the notions of "term frequency" and "inverse document frequency" (TF/IDF), state that users and documents can be represented with a term vector, state that a user's profile vector may be updated, and state that similarities between term vectors can be determined using a cosine distance. (See column 6, lines 9-17, 28-35 and 55-60 of the Rose patent, cited by the Examiner.) The appellant frankly does not see how the cited sections of the Rose patent compensate for the conceded deficiency of the Herz patent. That is, the appellant does not see how the cited portions of the Rose patent discussed above, which concern term vectors, teach a node (of a graph) representing documents or users. The appellant notes that Figures 5A and 5B of the Rose patent (cited by the Examiner) merely illustrate the notion of cosine distance between feature vectors. They do not teach, nor do they suggest, a graph including nodes, some of which are connected.

The Examiner also notes that "the table in figure 6 of Rose shows on the Y axis the different documents and the X axis the different users associated with these documents," and concludes, "Therefore, once these relationships are established it would have been obvious for one skilled [in the] art at the time of applicant's invention to draw lines or edges between the documents that are associated with particular users." (Paper No. 20091108, page 7.) The appellant respectfully disagrees, and respectfully notes that even if the Rose patent were

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modified as proposed by the Examiner, such a modification would still neither teach, nor make obvious, inferring user profile information for the user using a topology of the graph and user profile information ***of other documents*** as claimed. More specifically, referring to the table of Figure 6, the Rose patent states:

> Using the information in this table, a correlation matrix R can be generated, whose entries ***indicate the degree of correlation between the various users' interests*** in commonly retrieved messages. More precisely, element Rij contains a measure of ***correlation between the i-th user and the j-th user***. One example of such a matrix is the correlation matrix illustrated at 44 in FIG. 6. [Emphasis added.]

(Column 6, line 67 through column 7, line 6 of the Rose patent) Determining a degree of correlation ***between various users***, neither teaches, nor makes obvious, inferring user profile information for the user using a topology of the graph and user profile information ***of other documents*** as claimed. This deficiency of the recited patents is not addressed anywhere in the Office Action.

Finally, the Examiner concludes, without any substantiation, that it would have been obvious for one skilled in the art at the time of the invention to have a system that has "graphical representation of users and/or document[s]. The motivation for one skilled to use graph would be to establish relationships between the user and/or document." (Paper No. 20091108, page 7) The

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Examiner has not shown support in the Herz and Rose patents to support this assertion, nor has the Examiner proffered any obvious reason (for example, applying a known technique to a known device or method ready for improvement, to yield predictable results) to modify these patents as he proposes.

Thus, independent claims 7 and 39 are not rendered obvious by the Herz and Rose patents for at least the foregoing reasons. Since claims 13 and 45 depend from claims 7 and 39, respectively, these claims are similarly not rendered obvious by the Herz and Rose patents.

Group III. Claims 8 and 40

First, since claims 8 and 40 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group II above.

Second, these claims further recite that an edge is added (or act of adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node,*** and that (wherein) ***at least one document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node.*** Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and

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can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the second wherein clauses of these claims recite that the condition does in fact occur***. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group IV. Claims 9 and 41

First, since claims 9 and 41 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group II above.

Second, these claims further recite that an edge is added (or act of adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was selected by the user corresponding to the second node***, and that (wherein) ***at least one document corresponding to the first node was selected by the user corresponding to the second node***. Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the second wherein clauses of these claims recite that the condition does in fact occur***. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

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Group V. Claims 10 and 42

First, since claims 10 and 42 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group II above.

Second, these claims further recite that an edge is added (or act of adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node is linked with a document corresponding to the second node***, and that (wherein) ***at least one document corresponding to the first node is linked with at least one document corresponding to the second node***. Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the second wherein clauses of these claims recite that the condition does in fact occur***. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group VI. Claims 11 and 43

First, since claims 11 and 43 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group II above.

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Second, these claims further recite that an edge is added (or act of adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was visited by a set of users that have visited another document corresponding to the second node***, and that (wherein) ***at least one document corresponding to the first node was visited by a set of users that have visited at least one other document corresponding to the second node***. Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the second wherein clauses of these claims recite that the condition does in fact occur***. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group VII. Claims 12 and 44

First, since claims 12 and 44 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group II above.

Second, these claims further recite that (wherein) an edge is added (or act of adding an edge adds an edge) between first and second nodes ***if a user corresponding to the first node visited a set of one or more documents also visited by another user corresponding to the second node***, and that (wherein) ***the user corresponding to the***

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first node visited a set of one or more documents also visited by the other user corresponding to the second node. Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the second wherein clauses of these claims recite that the condition does in fact occur***. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group VIII. Claims 14-19 and 46-51

Independent claims 14 and 46 are not rendered obvious by the Herz and Rose patents because these patents do not teach acts of ***determining user profile information for a document*** using both initial user profile information and inferred user profile information, ***associating with the document, the determined user profile information for the document***, and storing the association of the document with the determined user profile information for the document. As indicated by Figure 5 of the present application, user profile information 524 may be associated with a document 522 (and other user profile information 514, 534 and 544 may be associated with other things 512, 532 and 542).

The Examiner cites column 10, lines 43-46 of the Herz patent as teaching recording associations between documents (movies) and users. (See Paper No. 20091108, pages 5 and 6.) Although movies can have attributes

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including a "list of customers who have previously rented this movie" (See, e.g., column 10, lines 22 and 23.), such ***a list, by itself, is not user profile information for a document,*** which is associated with the document, and which association is stored, as recited in claims 14 and 46. That is, a list of customers, by itself, is insufficient to provide attributes of those customers.

Thus, independent claims 14 and 46 are not rendered obvious by the Herz and Rose patents for at least the foregoing reason. Since claims 15-19 and 47-51 directly or indirectly depend from claim 14 and claim 46, respectively, these claims are similarly not rendered obvious by the Herz and Rose patents.

Group IX. Claims 20 and 52

First, since claims 20 and 52 depend from claims 14 and 46, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group VIII above.

Second, these claims further recite that the act of inferring user profile information for the document includes (i) defining a node for each of a number of documents and for each of a number of users, wherein each node represents a particular one of the number of documents or a particular one of the number of users, (ii) adding edges between nodes if there is an association between the nodes to define a graph, wherein there is an association between at least two of the nodes, and (iii) inferring user profile information for

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the document using a topology of the graph and user profile information of users and of other documents. As discussed with respect to the claims of Group II above, the Herz and Rose patents do not teach or make obvious ***inferring user profile information for a user*** in this way. The Herz and Rose patents similarly do not teach or make obvious ***inferring user profile information for a document*** in this way. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group X. Claims 21 and 53

First, since claims 21 and 53 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group IX above.

Second, these claims further recite that an edge is added (or act of adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node***, and that (wherein) ***at least one document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node***. Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the***

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second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group XI. Claims 22 and 54

First, since claims 22 and 54 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group IX above.

Second, these claims further recite that an edge is added (or act of adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was selected by the user corresponding to the second node***, and that (wherein) ***at least one document corresponding to the first node was selected by the user corresponding to the second node***. Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the second wherein clauses of these claims recite that the condition does in fact occur***. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group XII. Claims 23 and 55

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First, since claims 23 and 55 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group IX above.

Second, these claims further recite that an edge is added (or act of adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node is linked with a document corresponding to the second node,*** and that (wherein) ***at least one document corresponding to the first node is linked with at least one document corresponding to the second node.*** Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the second wherein clauses of these claims recite that the condition does in fact occur.*** Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group XIII. Claims 24 and 56

First, since claims 24 and 56 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group IX above.

Second, these claims further recite that an edge is added (or act of adding an edge adds an edge) between

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first and second nodes ***if a document corresponding to the first node was visited by a set of users that have visited another document corresponding to the second node,*** and that (wherein) ***at least one document corresponding to the first node was visited by a set of users that have visited at least one other document corresponding to the second node.*** Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the second wherein clauses of these claims recite that the condition does in fact occur.*** Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group XIV. Claims 25 and 57

First, since claims 25 and 57 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group IX above.

Second, these claims further recite that an edge is added (or act of adding an edge adds an edge) between first and second nodes ***if a user corresponding to the first node visited a set of one or more documents also visited by another user corresponding to the second node,*** and that (wherein) ***the user corresponding to the first node visited a set of one or more documents also visited by the other user corresponding to the second node.***

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Although the Examiner does not expressly address these claims, he does seem to argue that this "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20091108, page 6.) The appellant respectfully disagrees since ***the second wherein clauses of these claims recite that the condition does in fact occur***. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group XV. Claims 26 and 58

First, since claims 26 and 58 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group IX above.

Second, these claims further recite that the act of inferring user profile information for the document using a topology of the graph includes (i) multiplying the initial user profile information of the document by a first value to generate a first product, (ii) multiplying user profile information of neighboring graph nodes by a second value to generate a second product, and (iii) adding the first product and the second product. The Examiner contends that column 18, lines 63-67 and column 19, lines 1-7 of the Herz patent teach that attributes are multiplies by a weight, and that weighted attributes are added together. (See Paper No. 20091108, page 6.) The appellant respectfully disagrees because the cited portion of the Herz patent discusses multiplying

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attributes of a target object by a weight indicative of the strength of a user's preference for target objects that have high values for that attribute. This does not teach or make obvious inferring user profile information for the document using a topology of the graph by the combination of (i) multiplying the initial user profile information of the document by a first value to generate a first product, (ii) multiplying user profile information of neighboring graph nodes by a second value to generate a second product, and (iii) adding the first product and the second product, as claimed. The alleged teachings of the Rose patent do not compensate for this deficiency. Therefore, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

Group XVI. Claims 65 and 66

First, since claims 65 and 66 depend from claims 14 and 46, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed with respect to the claims of Group VIII above.

Second, these claims further recite that the determined user profile information is associated with the document, not with a user. This feature, which was apparently not specifically addressed by the Examiner, further distinguishes these claims over the Herz and Rose patents. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

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XIII. Claims appendix

An appendix containing a copy of the claims on appeal is filed herewith.

IX. Evidence appendix

There is no evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132, nor is there any other evidence entered by the Examiner and relied upon by the appellant in the appeal.

X. Related proceedings appendix

There are no decisions rendered by a court of the Board in any proceeding identified in section II above pursuant to 37 C.F.R. § 41.38 (c) (1) (ii).

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Conclusion

In view of the foregoing, the appellant respectfully submits that the pending claims are in condition for allowance. Accordingly, the appellant requests that the Board reverse each of the outstanding grounds of rejection.

Any arguments made in this Appeal Brief pertain ***only*** to the specific aspects of the invention ***claimed***. Any arguments are made ***without prejudice to, or disclaimer of***, the appellant's right to seek patent protection of any unclaimed (e.g., narrower, broader, different) subject matter, such as by way of a continuation or divisional patent application for example.

Since the appellant's remarks, amendments, and/or filings with respect to the Examiner's objections and/or rejections are sufficient to overcome these objections and/or rejections, the appellant's silence as to assertions by the Examiner in the Office Action and/or to certain facts or conclusions that may be implied by objections and/or rejections in the Office Action (such as, for example, whether a reference constitutes prior art, whether references have been properly combined or modified, whether dependent claims are separately patentable, etc.) is not a concession by the appellant that such assertions and/or implications are accurate, and that all requirements for an objection and/or a rejection have been met. Thus, the appellant reserves the right to analyze and dispute any such assertions and implications in the future.

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Respectfully submitted,

August 12, 2010

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this paper (and any accompanying paper(s)) is being facsimile transmitted to the United States Patent Office on the date shown below.

John C. Pokotylo
Type or print name of person signing certification

Signature

August 12, 2010
Date

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CLAIMS APPENDIX PURSUANT TO 37 C.F.R. § 41.37 (c) (1) (viii)

1. A computer-implemented method for determining user profile information for a user, the computer-implemented method comprising:

a) determining, with a computer system including at least one computer on a network, initial user profile information for the user using information included in past search queries submitted to a search engine by the user, wherein such information is independent of documents returned as search results to the past search queries;

b) inferring, with the computer system, user profile information for the user;

c) determining, with the computer system, the user profile information for the user using both the initial user profile information and the inferred user profile information; and

d) controlling, with the computer system, the serving of an advertisement to the user using the determined user profile information.

3. The computer-implemented method of claim 1 wherein the act of determining, with the computer system, initial user profile information for the user further uses past document selections by the user.

5. The computer-implemented method of claim 1 wherein the initial user profile includes a plurality of attributes, each of the plurality of attributes having a value and a score.

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6. The computer-implemented method of claim 5 wherein the score indicates a likelihood that the value of the attribute is correct.

7. A computer-implemented method for determining user profile information for a user, the computer-implemented method comprising:

a) determining, with a computer system including at least one computer on a network, initial user profile information for the user;

b) inferring, with the computer system, user profile information for the user;

c) determining, with the computer system, the user profile information for the user using both the initial user profile information and the inferred user profile information; and

d) controlling, with the computer system, the serving of an advertisement to the user using the determined user profile information,

wherein the act of inferring user profile information for the user includes

i) defining a node for each of a number of documents and the user, wherein each node represents a particular one of the number of documents or the user,

ii) adding edges between nodes if there is an association between the nodes to define a graph, wherein there is an association between at least two of the nodes, and

iii) inferring user profile information for the user using a topology of the graph and user profile information of other documents.

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8. The computer-implemented method of claim 7 wherein an edge is added between first and second nodes if a document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node, and wherein at least one document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node.

9. The computer-implemented method of claim 7 wherein an edge is added between first and second nodes if a document corresponding to the first node was selected by the user corresponding to the second node, and wherein at least one document corresponding to the first node was selected by the user corresponding to the second node.

10. The computer-implemented method of claim 7 wherein an edge is added between first and second nodes if a document corresponding to the first node is linked with a document corresponding to the second node, and wherein at least one document corresponding to the first node is linked with at least one document corresponding to the second node.

11. The computer-implemented method of claim 7 wherein an edge is added between first and second nodes if a document corresponding to the first node was visited by a set of users that have visited another document corresponding to the second node, and wherein at least one document corresponding to the first node was visited by a set of users that have visited at least one other document corresponding to the second node.

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12. The computer-implemented method of claim 7 wherein an edge is added between first and second nodes if a user corresponding to the first node visited a set of one or more documents also visited by another user corresponding to the second node, and wherein the user corresponding to the first node visited a set of one or more documents also visited by the other user corresponding to the second node.

13. The computer-implemented method of claim 7 wherein the act of inferring, with the computer system, user profile information for the user using a topology of the graph includes

i) multiplying the initial user profile information of the user by a first value to generate a first product;

ii) multiplying user profile information of neighboring graph nodes by a second value to generate a second product; and

iii) adding the first product and the second product.

14. A computer-implemented method for determining user profile information for a document, the computer-implemented method comprising:

a) determining, with a computer system including at least one computer on a network, initial user profile information for the document;

b) inferring, with the computer system, user profile information for the document;

c) determining, with the computer system, the user profile information for the document using both the

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initial user profile information and the inferred user profile information;

d) associating, with the computer system, with the document, the determined user profile information for the document;

e) storing, with the computer system, the association of the document with the determined user profile information for the document; and

f) controlling, with the computer system, the serving of an advertisement with the document using the determined user profile information for the document stored in association with the document.

15. The computer-implemented method of claim 14 wherein the act of determining an initial user profile information for the document uses content information from the document.

16. The computer-implemented method of claim 14 wherein the act of determining initial user profile information for the document uses document meta information.

17. The computer-implemented method of claim 14 wherein the act of determining initial user profile information for the document uses (i) content information from the document, and (ii) document meta information.

18. The computer-implemented method of claim 14 wherein the initial user profile information includes a plurality of attributes, each of the plurality of attributes having a value and a score.

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19. The computer-implemented method of claim 18 wherein the score indicates a likelihood that the value of the attribute is correct.

20. The computer-implemented method of claim 14 wherein the act of inferring, with the computer system, user profile information for the document includes

i) defining a node for each of a number of documents and for each of a number of users, wherein each node represents a particular one of the number of documents or a particular one of the number of users,

ii) adding edges between nodes if there is an association between the nodes to define a graph, wherein there is an association between at least two of the nodes, and

iii) inferring user profile information for the document using a topology of the graph and user profile information of users and of other documents.

21. The computer-implemented method of claim 20 wherein an edge is added between first and second nodes if a document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node, and wherein at least one document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node.

22. The computer-implemented method of claim 20 wherein an edge is added between first and second nodes if a document

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corresponding to the first node was selected by the user corresponding to the second node, and wherein at least one document corresponding to the first node was selected by the user corresponding to the second node.

23. The computer-implemented method of claim 20 wherein an edge is added between first and second nodes if a document corresponding to the first node is linked with a document corresponding to the second node, and wherein at least one document corresponding to the first node is linked with at least one document corresponding to the second node.

24. The computer-implemented method of claim 20 wherein an edge is added between first and second nodes if a document corresponding to the first node was visited by a set of users that have visited another document corresponding to the second node, and wherein at least one document corresponding to the first node was visited by a set of users that have visited at least one other document corresponding to the second node.

25. The computer-implemented method of claim 20 wherein an edge is added between first and second nodes if a user corresponding to the first node visited a set of one or more documents also visited by another user corresponding to the second node, and wherein the user corresponding to the first node visited a set of one or more documents also visited by the other user corresponding to the second node.

26. The computer-implemented method of claim 20 wherein the act of inferring user profile information for the document using a topology of the graph includes

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i) multiplying the initial user profile information of the document by a first value to generate a first product;

ii) multiplying user profile information of neighboring graph nodes by a second value to generate a second product; and

iii) adding the first product and the second product.

33. Apparatus for determining user profile information for a user, the apparatus comprising:

a) at least one processor;

b) an input device; and

c) at least one storage device storing a computer executable code which, when executed by the at least one processor, performs a method of

1) determining initial user profile information for the user using information included in past search queries submitted by the user, wherein such information is independent of documents returned as search results to the past search queries,

2) inferring user profile information for the user,

3) determining the user profile information for the user using both the initial user profile information and the inferred user profile information, and

4) controlling the serving of an advertisement to the user using the determined user profile information.

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35. The apparatus of claim 33 wherein the act of determining an initial user profile information for the user further uses past document selections by the user.

37. The apparatus of claim 33 wherein the initial user profile includes a plurality of attributes, each of the plurality of attributes having a value and a score.

38. The apparatus of claim 37 wherein the score indicates a likelihood that the value of the attribute is correct.

39. Apparatus for determining user profile information for a user, the apparatus comprising:

a) at least one processor;

b) an input device; and

c) at least one storage device storing a computer executable code which, when executed by the at least one processor, performs a method of

1) determining initial user profile information for the user,

2) inferring user profile information for the user,

3) determining the user profile information for the user using both the initial user profile information and the inferred user profile information, and

4) controlling the serving of an advertisement to the user using the determined user profile information,

wherein the act of inferring user profile information for the user includes

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i) defining a node for each of a number of documents and the user, wherein each node represents a particular one of the number of documents or the user,

ii) adding edges between nodes if there is an association between the nodes to define a graph, wherein there is an association between at least two of the nodes, and

iii) inferring user profile information for the user using a topology of the graph and user profile information of other documents.

40. The apparatus of claim 39 wherein the act of adding edges adds an edge between first and second nodes if a document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node, and wherein at least one document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node.

41. The apparatus of claim 39 wherein the act of adding edges adds an edge between first and second nodes if a document corresponding to the first node was selected by the user corresponding to the second node, and wherein at least one document corresponding to the first node was selected by the user corresponding to the second node.

42. The apparatus of claim 39 wherein the act of adding edges adds an edge between first and second nodes if a document corresponding to the first node is linked with a document corresponding to the second node, and wherein at

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least one document corresponding to the first node is linked with at least one document corresponding to the second node.

43. The apparatus of claim 39 wherein the act of adding edges adds an edge between first and second nodes if a document corresponding to the first node was visited by a set of users that have visited another document corresponding to the second node, and wherein at least one document corresponding to the first node was visited by a set of users that have visited at least one other document corresponding to the second node.

44. The apparatus of claim 39 wherein the act of adding edges adds an edge between first and second nodes if a user corresponding to the first node visited a set of one or more documents also visited by another user corresponding to the second node, and wherein the user corresponding to the first node visited a set of one or more documents also visited by the other user corresponding to the second node.

45. The apparatus of claim 39 wherein the act of inferring user profile information for the user using a topology of the graph includes

i) multiplying the initial user profile information of the user by a first value to generate a first product,

ii) multiplying user profile information of neighboring graph nodes by a second value to generate a second product, and

iii) adding the first product and the second product.

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46. Apparatus for determining user profile information for a document, the apparatus comprising:

a) at least one processor;

b) an input device; and

c) at least one storage device storing a computer executable code which, when executed by the at least one processor, performs a method of

1) determining initial user profile information for the document,

2) inferring user profile information for the document,

3) determining the user profile information for the document using both the initial user profile information and the inferred user profile information,

4) associating with the document, the determined user profile information for the document,

5) storing the association of the document with the determined user profile information for the document, and

6) controlling the serving of an advertisement with the document using the determined user profile information for the document stored in association with the document.

47. The apparatus of claim 46 wherein the act of determining an initial user profile information for the document uses content information from the document.

48. The apparatus of claim 46 wherein the act of determining initial user profile information for the document uses document meta information.

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49. The apparatus of claim 46 wherein the act of determining initial user profile information for the document uses (i) content information from the document, and (ii) document meta information.

50. The apparatus of claim 46 wherein the initial user profile information includes a plurality of attributes, each of the plurality of attributes having a value and a score.

51. The apparatus of claim 50 wherein the score indicates a likelihood that the value of the attribute is correct.

52. The apparatus of claim 46 wherein the act of inferring user profile information for the document includes

i) defining a node for each of a number of documents and for each of a number of users,

ii) adding edges between nodes if there is an association between the nodes to define a graph, wherein there is an association between at least two of the nodes, and

iii) inferring user profile information for the document using a topology of the graph and user profile information of users and of other documents.

53. The apparatus of claim 52 wherein the act of adding edges adds an edge between first and second nodes if a document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node, and wherein at least one document corresponding to the first node was returned in a

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search results page to a search query from the user corresponding to the second node.

54. The apparatus of claim 52 wherein the act of adding edges adds an edge between first and second nodes if a document corresponding to the first node was selected by the user corresponding to the second node, and wherein at least one document corresponding to the first node was selected by the user corresponding to the second node.

55. The apparatus of claim 52 wherein the act of adding edges adds an edge between first and second nodes if a document corresponding to the first node is linked with a document corresponding to the second node, and wherein at least one document corresponding to the first node is linked with at least one document corresponding to the second node.

56. The apparatus of claim 52 wherein the act of adding edges adds an edge between first and second nodes if a document corresponding to the first node was visited by a set of users that have visited another document corresponding to the second node, and wherein at least one document corresponding to the first node was visited by a set of users that have visited at least one other document corresponding to the second node.

57. The apparatus of claim 52 wherein the act of adding edges adds an edge between first and second nodes if a user corresponding to the first node visited a set of one or more documents also visited by another user corresponding to the second node, and wherein the user corresponding to

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the first node visited a set of one or more documents also visited by the other user corresponding to the second node.

58. The apparatus of claim 52 wherein the act of inferring user profile information for the document using a topology of the graph includes

i) multiplying the initial user profile information of the document by a first value to generate a first product,

ii) multiplying user profile information of neighboring graph nodes by a second value to generate a second product, and

iii) adding the first product and the second product.

65. The computer-implemented method of claim 14 wherein the determined user profile information is associated with the document, not with a user.

66. The apparatus of claim 46 wherein the determined user profile information is associated with the document, not with a user.

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EVIDENCE APPENDIX PURSUANT TO 37 C.F.R. § 41.37 (c) (1) (ix)

There is no evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132, nor is there any other evidence entered by the Examiner and relied upon by the appellant in the appeal.

RELATED PROCEEDINGS APPENDIX PURSUANT TO 37 C.F.R. § 41.37 (c) (1) (x)

There are no decisions rendered by a court of the Board in any proceeding identified in section II of the Appeal Brief pursuant to 37 C.F.R. § 41.37 (c) (1) (ii).